

**STUDY OF STORAGE CONDITION OF OIL PALM FROND JUICE
FOR BIOETHANOL PRODUCTION**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

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OPF Juice has become a promising feedstock for bioethanol. However, a substantial challenge of working with OPF Juice is the quick deterioration of sugar during storage. Hence, this study focused on the optimum bioethanol storage and fermentation of OPF Juice. The OPF juice was obtained by pressing it on a sugarcane press machine. Two methodologies, rotary evaporator and dehydrator, was used for removing 50% of the water content of the juice. The juice was stored in 30 °C, 40 °C, and 50 °C for 20 days to observe the sugar deterioration. The samples with least degradation was fermented to produce bioethanol. The result showed that 30 °C samples experienced 88% sugar loss, 40 °C samples experienced 84% sugar loss, and 50 °C samples experienced 0% sugar loss. Both method of water removal had insignificant effect on sugar degradation. However, the dehydrator samples yielded slightly better sugar preservation than rotary evaporator. The moisture content had insignificant effect for sugar preservation. However, the dehydrated samples were more concentrated, making it required less volume space in storage. The fermentation process yielded an unsatisfactory result of ethanol content, due to the insufficiency sugar content for the yeast in the ethanol-producing phase.

Keywords: Oil Palm Frond Juice, Bioethanol Fermentation, Storage, Fermentation, Saccharomyces Cerevisiae.



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DEDICATION

I dedicate this work to the future of science in Indonesia
to SGU and beloved lecturers for the education and knowledge,
as well for my family, friends and everyone that supported me in
the making of this thesis work. Thank you!



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